Abstract of the Disclosure

An electron beam device wherein a low temperature gaseous plasma is generated in a chamber divided by two parallel wire grids. A semiconductor wafer serves as a cathode drawing ions from the plasma to impinge on the wafer, generating secondary electrons that are accelerated toward an anode on the opposite side of the grids where a target resides. In order to have a beam with uniform cross-sectional flux characteristics, the semiconductor wafer is doped with a graded dopant concentration that promotes a uniform beam.